EUMOFA TALK: Blue bioeconomy outlook

Replies to attendees' questions not answered during the talk

What is the chance that sustainable aquaculture activities for food production occur alongside the production of raw material for new biopharmaceutics?

Pierre Erwes: Not likely! The standards for biopharmaceuticals ingredients can't stand irregularities in production batches. When you farm in a natural environment there are many factors you can't control. If you wish to get a pharma or cosmetic grade ingredient, then you need to invest a high capex to extract and purify the ingredients. Sometimes it's easier to develop these types of natural compounds directly from cell plant or RAS. When it's a feed and / or food grade ingredient the requirement is less demanding and you can manage to extract and purify with the right economic equation.
Cosmetic is even stricter than Pharma as you can't have any animal contamination for the extract so bear in mind that Multi trophic aquaculture is definitely not an option.

Do you see algae as an alternative or a supplement to fishmeal/fish oil as ingredient in the aquaculture sector?

Maris Stulgis: Certainly, yes. Fishmeal and fish oil from algae, when scaled up on the European market, will ensure a viable alternative to fish origin oil/meal thus reducing the pressure on wild fish stocks. Moreover, omega-3 rich algae oil could be also a valid alternative for fish oil to be used as human food supplement. Use of algae for human food/food supplements and fish and animal feed are among the key potential application areas to be considered in the EU algae initiative and the relevant impact assessment taking place over 2021.

Although the rest raw material use increases the efficiency of fisheries and aquaculture, the raw materials we throw back can be feed to other organisms and trophic levels. Do we not empty the ocean more (imbalance trophic levels) using the rest raw material principle? How do we go about that towards the future?

Eirik Hess: I haven't seen any research on the balance between trophic levels with respect to discards from fisheries. However, looking at the case study on Denmark, the rest raw material (RRM) discarded at sea represents a very small share of the overall occurrence of RRM. Most of the RRM occurs at the processing stage of the supply chain. That biomass is already landed, so improving the RRM utilisation will only increase the value and reduce waste.

Is the market in the EU big enough for the seaweed and bivalves that IMTA would produce? Will the EU consumer pay enough to make it economic?

Meredith Lloyd-Evans: The market for seaweeds as edibles for humans is still small in the EU (€50M-€60M, representing 15-16 thousand tonnes) but there are good prospects if domestic production is increased, as seaweed are seen as 'healthy' components of the diet. However, the added volume uptake in this higher-value market will not make much impact on the potential increase in seaweed tonnage if used in spatial IMTA, and some seaweeds will need regulatory approval as Novel Foods which is a disincentive. Large-scale markets such as bioplastics, animal feeds, petfoods and bioenergy will need to be reached. Storage for freshness and transport logistics require technical solutions in achieving this. Fortunately, there is now a strong drive for 'green' plastics, energy and feed components and the sizes of these markets is substantial (estimates are bioplastics: global >$20B; animal feed: >$50B in Europe; petfoods: >€32B in Europe for finished foods; bioenergy: c. €50B for biofuel and biodiesel in Europe). For animal feed and petfoods, the interest is in methane-reduction for cattle and sheep and the bioactivity of seaweed extracts. In all these markets, some starting steps are being taken by start-ups and small companies.

How consumers will respond to availability of seaweeds is an interesting point. The markets tend to split between self-selected health-conscious consumers buying on-line or from health food stores and nutraceutical or functional foods outlets, and mass-market consumers, where a close link is needed with food retailers in order to secure market pull-through. The former will accept a price premium in return for an on-label benefit; the latter are usually price-sensitive. The situation is still complicated and this is why we should keep a close eye on companies such as Lerøy Ocean Harvest, who will be the case studies for future action.